combine the loop and switching elements would need to install its own "mini-MDF," tie-cables to the ILEC's frame, and cross-connects.[8]

32. BellSouth also claims to offer what is known as "cageless" physical collocation. Under this variant, the CLEC's collocated space in the common area is not enclosed in a cage or in gypsum wallboards. Rather, the CLEC places its equipment into the common area, and leaves it exposed. In "cageless" collocation, a CLEC need not obtain a 100 square foot minimum space, as is the case with enclosed physical collocation. Tipton Aff. ¶ 11.

2. Virtual Collocation

33. BellSouth also offers virtual collocation. Tipton Aff. ¶ 5 Under the typical virtual collocation scenario, the ILEC assumes complete control of the CLECs equipment, and places it in the central office. Once installed, the CLEC cannot access the equipment, and the ILEC maintains the equipment. Id. ¶ 17. Virtual collocation is required if there is no separate space in a central office for CLECs to place and maintain their equipment. Id. ¶ 23.

34. BellSouth claims to offer CLECs a choice between virtual and physical collocation. Br. at 36; Tipton Aff. ¶ 23. However, I can find no enforceable commitment in the SGAT, in the Master Collocation Agreement, or elsewhere that binds BellSouth to allow CLECs this choice. Cf. BellSouth South Carolina Order ¶ 207 ("[I]t is unclear from the

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[8] A CLEC seeking access to loops for purposes of transmission to its own switch would need additional and more sophisticated equipment.

record whether BellSouth will offer carriers a choice of either physical or virtual collocation in the first instance"). Indeed, the terms for BellSouth's virtual collocation offering, to the extent they are binding at all, are contained largely in its tariff filed with the FCC. See Collocation Handbook, at 4, 6, 17 (PAT Exh. 2) (referring carriers to BellSouth's FCC #1 Tariff, Section 20). Although that tariff binds BellSouth, I note that it was not included in this Application, and is not part of the record.

35. To assess the viability of these collocation methods, it is necessary to describe how loops are typically connected to switches in an ILEC central office, and to describe the steps that would be involved in recombining UNEs under BellSouth's collocation requirement.

B. Manually Connecting Loops To Switch Ports

36. There are two basic architectures for manually connecting loops to switching. The first, and most common, involves use of an MDF, at which each copper wire loop is individually cross-connected to another pair of wires that runs to a switch port connector block. The second involves use of Integrated Digital Loop Carrier (IDLC), in which a digital circuit carrying numerous multiplexed loops bypasses the MDF and is attached directly to the switch. Because these architectures have different implications for accessing unbundled loops, I will discuss each in turn.

1. Copper Loops

37. Attachment 5 to my affidavit ("Figure 1") depicts a typical configuration for manually attaching copper loops to switch ports in an ILEC central office.

As noted, this attachment is done at the MDF, which consists of a series of connector blocks, each of which is connected to ironwork uprights anchored to the floor and ceiling. A photograph of an MDF ironwork is also attached. See Attachment 6.

38. As depicted in Figure 1, the MDF has two sides: a line-side and a switch-side. Bolted to each side of the MDF is a series of connector blocks (see photograph at Attachment 7), each of which typically contains approximately 200 terminals at which individual wires can be connected. To aid frame technicians in distinguishing the two sides of the MDF, the connector blocks on the line side are arrayed vertically, and the connector blocks on the switch side are arrayed horizontally. See photographs at Attachments 7 and 8.

39. Copper loops are typically attached to switch ports in the following manner. As shown in Figure 1, cables carrying multiple loops enter the central office and run to the MDF. At the frame, each loop (typically a pair of copper wires) is segregated from these cables and attached (by being installed at the appropriate position on the block and then either wire wrapped or soldered) to the specific terminal on a connector block to which it is assigned. This is a "hard-wired" connection that is installed at the time the cables were brought into the central office. Barring cable replacement, ILEC technicians never touch these connections.

40. A second wire, known as a "cross-connect" (or alternatively, "cross wire" or "jumper") is then attached to those same line side terminals. The cross-connect runs to the other (switch) side of the MDF, where it is attached to a specific terminal on another connector block. The length of the cross-connect required varies considerably,

from two to three feet up to as long 100 or even 200 feet. From those terminals, a pair of wires runs to the switch port (also known as the "line card" or "line termination unit"). This final connection from the terminal to the line card is also a "hard-wired" connection that the switch vendor establishes when the switch is installed. Again, barring equipment failure or replacement, it is never moved or altered again.

41. ILECs maintain a software data base inventory of the numbers assigned to each piece of equipment making up the loop-switch combination. ILECs typically keep track of each copper loop by its cable number and pair number, and record its place on the connector block ("block assignment") by assigning a number to each terminal on each block. Similarly, the line units (on line ports) on the switch are assigned identifying numbers.

42. Although most copper loops are attached to the switch in this manner, some are not. For various reasons, it is sometimes preferable to introduce a second frame, called the Intermediate (or "Tie Pair") Distribution Frame (IDF), when attaching a loop to the switch.[9] In this configuration, depicted in Figure 2 (Attachment 9), the ILEC runs a cross-connect to a different block on the MDF. From this block an established tie-cable is connected to a block on the IDF. On the IDF, the ILEC technician runs a cross-

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[9] An IDF is used primarily to minimize the length of jumper wires traveling across an MDF, or to insert additional technologies between the loop and port (such as amplifiers or special services equipment). In all cases, the ILEC determines whether to install an IDF, and what equipment to attach to that frame. In the collocation architecture described below, the CLEC must use IDFs whenever the ILEC decides to use them.

connection to another block on the IDF that has a tie-cable connecting it back to the MDF. On the MDF, the ILEC technician runs a cross-connect from the block that terminated the tie-cable coming from the IDF to the block on the MDF containing the switch port.

2. Integrated Digital Loop Carrier (IDLC)

43. While the MDF-based architecture is the most commonly used today, ILECs are turning increasingly to a superior technology, IDLC, for serving new residential and commercial developments and, where appropriate, replacing old plant. In Louisiana alone, BellSouth estimates that 7 percent of its lines are carried by IDLC, and expects that number to grow. In some states experiencing faster growth, the percentage of IDLC lines today exceeds 20 percent.

44. The architecture of the loop/switch combination with IDLC is substantially different from the copper wire architecture described above. As shown in Figure 3 (Attachment 10), instead of aggregating copper loops in cables and carrying them all the way to the MDF at the central office, the ILEC brings the loop first to the IDLC remote terminal, which is located in an underground vault or locked cabinet in a neighborhood. The remote terminal converts the analog loops to a digital signal and multiplexes all the digital signals onto a digital carrier system for transmission to the central office. At the central office, the digital loops bypass the MDF altogether and access the switch directly through a digital cross-connection frame. No analog signal or physical reappearance on an MDF is ever re-established to identify an individual subscriber's loop.

45. Therefore, when a customer is served by an IDLC loop, there is no wire at the MDF that is associated with that loop that can be disconnected for reconnection by a CLEC. Moreover, in some circumstances, there is no effective way to re-establish a copper pair loop for an individual subscriber that is served by IDLC, which prevents the customer from being switched to a CLEC-assigned copper loop. In such cases, the CLEC would be unable to serve that customer through an unbundled loop. In all other circumstances, removing the subscriber from the IDLC system comes only at the unacceptably high cost of impairing the subscriber's service quality. Thus, as discussed further below, it is entirely inappropriate to require collocation for customers served by IDLC loops.

C. The Steps Necessary for CLECs to Manually Reconnect Loops and Switching In Collocated Space

46. Under all types of collocation arrangements, the process for combining UNEs first requires that the CLEC apply for, and the ILEC provide, the collocated space. Next, as depicted in Figure 4 (see Attachment 11), the ILEC, at a minimum, must install a set of tie cables between the MDF and the CLECs' pre-wired frame, or between the IDF and the CLEC's pre-wired frame, for those ILEC offices which use IDFs.[10] These initial

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[10] In addition, the tie cables may meet at yet another intermediate frame -- called a point-of-termination (POT) bay (or "common frame"). The POT bay is typically located just adjacent to collocated space, and may serve as the point of demarcation between the ILEC's network and the CLEC's network. It typically does not have cross-connection connector blocks or cross-connects. Rather, the CLEC's and ILEC's tie cables are simply mounted and tied together on the frame. In a typical collocation arrangement, the POT bay serves as a

(continued...)

steps must occur before a CLEC can begin to serve any customers. Under BellSouth's collocation requirement, another entire sequence of steps is necessary once the customer decides to switch local service providers: BellSouth insists that it physically disconnect the customer's loop and switching elements, and then that the CLECs recombine those elements.

47. With virtual collocation, there is one change: the CLEC's pre-wired frame gets installed in the central office in the same area as the ILEC's equipment, eliminating the need for secure space. Other than this, virtual collocation shares the same shortfalls as the physical or cageless collocation options.

48. The process for establishing collocated space typically consists of two phases -- an inquiry phase and an engineering/installation phase:

a. To begin phase I, the CLEC would submit to the ILEC a collocation application and a check for the processing fee for each office where networks are to be interconnected. See Tipton Aff. ¶ 18, 20.

b. The CLEC would then wait to receive back from the ILEC confirmation that the application was accepted and that space in the collocation area is available

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[10] (...continued)
common test point, thereby allowing ILEC and CLEC technicians to test the line in their respective directions, and determine whether trouble on a circuit is located on the ILEC or CLEC network. In my view, as discussed below, a point of termination frame for the loop and switch combination is unnecessary, because the CLEC network consists of nothing more than two tie-cables and a few feet of jumper wire. In any event, all testing for unbundled loop and switch combinations can and should be accomplished using the mechanized loop test (MLT) capabilities of the switch.

and ready for engineering. The ILEC's response would also include the specific terms and prices for the arrangement. Id. ¶¶ 20-22

c. Upon receiving an acceptance, the CLEC would then tender a firm order request to the ILEC. If that firm order is accepted, the ILEC and CLEC would move to phase II, which begins with the scheduling of a joint planning meeting to engineer the space to meet the CLEC's needs and appropriate ILEC requirements. Id. ¶¶ 24-26.

d. Following the completion of the planning, the CLEC would then await the ILEC's notification that the ILEC (or an ILEC-approved vendor) had completed building the collocation cage. This step does not occur with virtual collocation, because there is no collocation cage.

e. The CLEC would then retain an appropriate equipment vendor, making sure that the vendor is ILEC-certified, to install, test, and turn-up the CLEC's equipment. Id. ¶¶ 28-29. For prospective connection of the loop and switch elements, this would consist of installing a mini-MDF pre-wired with cross-connects and tie-cables to the ILEC's POT frame, IDF, or MDF. For virtual collocation, the ILEC is responsible for installing the equipment, and notifies the CLEC when the installation is complete.

See generally Tipton Aff. & PAT Exhs. 1 and 2 (Negotiations Handbook for Collocation & Collocation Master Agreement).

49. Of course, if the foregoing process is not completed the CLEC cannot order a loop and switching elements. To provision service for an actual customer using those elements in collocated space requires yet another sequence of steps. Unfortunately, as I discussed, BellSouth has not provided any binding, definite terms and conditions for these sequence of steps. Given that this is the process by which customers are actually provided with service, this omission is fatal to BellSouth's collocation requirement. To illustrate how such provisioning might occur, I use basic assumptions and BellSouth's non-binding statements in affidavits to describe the steps needed to provide UNE-based service to a single-line ILEC residential POTS customer who wishes to switch over to a CLEC:

a. First, the ILEC would pre-wire all of the cross-connections on the connector blocks at the IDF (if an IDF were used). This would effectively establish a connection from new connector blocks on the MDF, through the tie-cables to the IDF, through the tie-cables to the collocated frame, and through the CLEC's pre-wired cross-connection frame in the collocated space. From the CLEC's pre-wired frame, the connection would go back to the IDF and finally back to the MDF, where it originated. As illustrated in Figure 5 (see Attachment 12), this pre-wiring creates a giant "U" shaped circuit, with the new connector blocks on the ILEC MDF waiting to have loops and switch ports attached to them.[11]

[11] In both Figure 5 and Figure 4, supra, I have depicted the installation of new connector
(continued...)

b. Next, the CLEC would submit a service order to the ILEC requesting the unbundled loop and switch elements for a specific customer.[12] The request would specify the tie-down information -- e.g., the tie-cable and pair number, and the block assignments to connect that particular customer to the pre-wired "U" circuit through the CLEC's collocated frame and back to the MDF.

c. Assuming the pre-wiring described above is in place, the ILEC can then perform the actual cutover of service. The most efficient way to accomplish the cutover -- which is the final phase of the customer transition -- is by performing a "hot-cut." A hot cut minimizes customer downtime by coordinating the cutover so that the customer's service is not disconnected for long periods prior to the customer's transition. To perform this work, an ILEC's frame technicians would lay-in a new cross-connection wire from the customer's loop location on the line-side of the MDF to the CLEC's connector block on the MDF (depicted in Figures 4 and 5 as on the line-side).

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11 (...continued)
blocks on both the line-side and the switch-side of the MDF. I understand that some RBOCs would install the new connector blocks only on the switch side. This arrangement in no way affects my analysis of collocation to recombine UNEs, and, accordingly, to keep the diagrams simple, I do not depict the arrangement in this manner.

12 Obviously, a CLEC cannot send such orders unless the CLEC and ILEC have agreed on the specifications and procedures for submitting UNE-based orders, have deployed and tested the relevant systems, and have determined that the ILEC has developed the ability accurately and mechanically to measure and bill for the usage of unbundled elements. These important issues are also unresolved with BellSouth and are discussed separately in the affidavits of Mr. Bradbury and Mr. Hamman.

Another cross-connect is required to run from the CLEC-assigned connector block on the switch side of the MDF to the ILEC connector blocks on the switch-side of the MDF, which is connected to the switch port. The frame technician would then remove the existing cross-connection from the customer's loop location to the ILEC's switch port, causing the customer to lose service. The technician would then attach the new cross-connections that were just laid in, and "mine" (i.e., completely remove) the old, previously disconnected wires from the frame. See Figures 4 and 5 (Attachments 11 & 12).

d. Finally, the ILEC must test continuity from the original switch port termination at the MDF to the original loop termination at the MDF. If continuity is not established then the ILEC, together with the CLEC, must troubleshoot the daisy chain of tie-pair cables and cross-connect wires until proper continuity is restored.

50. Two points are worth emphasizing here. First, as the Commission's BellSouth South Carolina Order contemplates, see ¶ 197, these specific details and steps for combining network elements must be described in detail in legally binding documents, such as interconnection agreements. Although some of the details of establishing collocated space are contained in BellSouth's Master Collocation Agreement, virtually none of the steps necessary to provision service for a CLEC customer are described in detail in any BellSouth

documents, and certainly are not described in detail in legally binding BellSouth documents. See supra (describing vague nature of BellSouth's SGAT and interconnection agreements).

51. Examples of such missing details and commitments include the procedures for performing hot-cuts. Although I described how that process might work, nowhere does BellSouth commit to procedures for performing these hot-cuts, or, equally as important, to perform a specific amount of hot-cuts at specific locations. While this example is plainly competitively significant, equally absent are commitments for less obvious procedures that still must be performed correctly to provision service. For example, I described above how the CLEC's service order would specify the location of the loop and switch to be provisioned, but these locations plainly must be placed in an inventory so that the ILEC knows which equipment is used by which carrier. Yet nowhere does BellSouth describe or commit to procedures for tracking this inventory for combined loops and switch. Thus, although I described an efficient provisioning process, BellSouth itself has failed either to describe or to commit to those processes.

52. Second, given BellSouth's claims that both virtual collocation and "cageless" physical collocation provide simpler alternatives for CLECs to combine elements if they do not wish to maintain physically collocated space, Br. at ii, it is important to stress that in both virtual collocation and "cageless" collocation, combining UNEs to provide service for a CLEC customer requires all the manual processes just described. Thus, all of the drawbacks of these manual processes that I describe in the next section apply not only to physical collocation, but to cageless and to virtual collocation. And though these two

alternatives reduce the space preparation costs associated with traditional physical collocation, they do not reduce the cost of significant manual labor to perform the cutover. But even if BellSouth provided collocation for free, the competitive drawbacks of this manual approach are so significant that CLECs could not compete using combined UNEs under BellSouth's collocation requirement.

53. Moreover, relying strictly on virtual or cageless collocation itself presents competitive risks: once a CLEC implements those arrangements, it is much more difficult for the CLEC to convert from providing service using UNEs to serving customers with its own facilities. The CLEC's customers' loops that the CLEC would want to access and combine with its own facilities would each have to be undone from the virtual, cageless, or other smaller physical collocation arrangement and then moved to the newly established collocated space necessary for the additional equipment required to access the loops. To avoid this process, a CLEC might decide to establish physical collocation even though it is more expensive. A CLEC might reach the same conclusion to rely immediately on physical collocation if it believes that physically collocated space might be exhausted when it wants to make the transition to facilities-based service. Accordingly, even though the options of virtual and cageless collocation are somewhat less expensive than physical collocation, they retain the manual processes that are most significant disadvantages of all collocation approaches, while presenting new risks of their own.

54. Indeed, the disadvantages of all forms of collocation are so significant that the only CLECs that would choose to purchase collocated space would be those CLECs

that needed to do so, because, for example, they have installed their own switch, and require collocation for that reason. But since those CLECs will not be seeking to recombine unbundled loops and unbundled switching, the practical effect of any form of collocation requirement is to preclude entirely those CLECs that do not have their own facilities from combining UNEs -- the very result that the Eighth Circuit found objectionable.

III. THE MANUAL RECOMBINATION OF UNBUNDLED LOOP AND SWITCHING ELEMENTS THAT OCCURS WITH COLLOCATION CREATES SIGNIFICANT BARRIERS TO COMPETITION

55. Even under the best of circumstances, the manual reconnection of the loop and switch through the manual processes that must occur with both physical and virtual collocation is cumbersome and inefficient. It prevents CLECs from gaining access to the unbundled loop and switch in a manner that would permit effective competition. In particular, a collocation approach imposes these serious obstacles to effective competition:

- It requires that the CLEC customer's line be taken completely out of service and creates a substantial risk of an extended outage;
- It will prevent CLECs from using the loop/switch combination (1) to service any customers soon; (2) to ever serve competitively significant numbers of customers; and (3) to serve some customers (e.g., those on IDLC) at all;
- It will waste scarce and valuable collocation and frame space that cannot be used by CLECs that later seek to add in their own equipment;

- It will impose inferior service on CLEC customers compared to the service that ILEC customers receive;
- It will impose uncertain, unbounded, and entirely unnecessary costs; and
- It will preclude CLECs from combining other unbundled elements, most notably dedicated transport with the loop and with the switch.
- It violates the holding of the Eighth Circuit that a CLEC may combine UNEs without "own[ing] or control[ling] some portion" of a network.

I will discuss each of these obstacles to competition in turn, and then will discuss the numerous decisions by state public service commission that have found, based on these obstacles, that collocation is inconsistent with the Act's requirements.

A. Loss of Service During Cutover

56. With any form of collocation, there is no escaping the problem that the customer is placed out-of-service for some period of time in order to disconnect and then reconnect the service. In the best-case scenario described above, pre-wiring by the CLEC and ILEC reduces the time that the customer is without service to the time it takes to perform a "hot cut" -- that is, to remove both ends of a cross-connect and cut on the two new cross-connections, without having previously removed the dial tone at the switch. In addition, in the best-case scenario, an ILEC would establish binding methods and procedures (M&Ps) to ensure that each hot cut is performed correctly by an experienced crew, so that the amount of time the customer would be kept out of service would be minimized.

57. If the assumptions underlying the best-case scenario do not hold, however, then the chances for a prolonged outage increase. Indeed, there are many reasons why the time for a cutover could increase substantially.

58. For example, even if an ILEC agrees to pre-wiring, an outage could occur if the pre-wiring is done incorrectly. Examples of predictable errors include misidentified block assignments, misidentified cable or pair numbers, defective connections, and "assignments not spare."[13] Given the difficulty of maintaining completely accurate and parallel ILEC/CLEC inventories of all block assignment and frame locations, as well as the numerous points of potential failure on the collocation circuit, there is a substantial chance that such problems could occur.[14] Notably, the chances for error are higher than with simple provisioning of unbundled loops, because provisioning the loop/switch combination requires twice as many cross-connections as is required simply to roll a single loop for a CLEC to combine with its own switch (that is, two cross-connects instead of one, assuming no IDF, or four instead of two, with an IDF). And, the chances for error are higher where the ILEC does not agree to establish and adhere to M&Ps for these activities.

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[13] An "assignment not spare" occurs when a technician is given a correct block assignment but nevertheless discovers on the job that the terminal is occupied by another wire that was mistakenly not removed during a previous job.

[14] In such circumstances, the outage might be minimized if the ILEC technicians restored the customer's former cross-connect while the repair work is ongoing, but here again the CLEC would be dependent upon the ILEC to follow such procedures.

59. The best-case scenario also assumes that ILECs will devote the substantial resources -- e.g. overnight shifts of experienced frame technicians -- needed to minimize customer service interruption. It is doubtful, however, that ILECs will be able consistently to make such resources available to meet the demands of CLECs in a competitive market.

60. BellSouth has indicated to AT&T that it will allow CLECs to pre-wire the tie cables to the collocated equipment and to install a pre-wired frame. See Attachment 13, Letter of Quinton Sanders, BellSouth, to William J. Carroll, AT&T, Attachment, at 1 ("BellSouth 2/10 Response"); Milner Aff. ¶¶ 25, 39 (noting that a CLEC can pre-wire its frame). However, when AT&T asked about establishing M&Ps for recombining elements using collocation, BellSouth refused, and maintained that "[t]here are no unique M&Ps for the delivery of unbundled network elements to a collocation arrangement for the purpose of the CLEC combining said elements. The M&Ps developed by BellSouth for the purpose of ordering and provisioning unbundled network elements apply." Attachment 13, BellSouth 2/10 Response, Attachment, at 3.

61. Contrary to BellSouth's assertions, there is significant room for discretion, even within the parameters of a "hot cut," to perform the procedure so it has greater or lesser impact on the customer. For example, the ILEC technicians should check in advance of the cutover to make sure that there is no active call on the line. Similarly, the sequence for disconnecting and reconnecting each terminal that the technicians follow will affect the amount of time that the customer's service is interrupted. And, because a

minimum of two cross-connections must be made to provision any one customer with an unbundled loop and switch, the number of technicians that the incumbent LEC uses to provision each order will also affect the amount of customer downtime. Therefore, it is essential to establish appropriate M&Ps governing these and related aspects of loop/switch provisioning, in order to minimize the disruption of the cutover process for the consumer.[15]

62. Mr. Milner of BellSouth contends that M&Ps are not necessary because, in order to combine UNEs, "CLECs will use the same types of cross-connections that BellSouth regularly uses [thousands of times] every day in its retail operations. . . . [U]se of cross-connections . . . is not discriminatory, but rather is a routine part of local telephone operations and precisely analogous to the manner in which BellSouth establishes service to customer premises not previously served by its network." Milner Aff. ¶ 24.

63. However, there are significant practical distinctions between BellSouth's traditional use of cross-connects to establish service and the cutover procedure that is necessary to recombine UNEs under BellSouth collocation requirement. First, and foremost, the "routine telephone operations" referred to by Mr. Milner are truly the exception to the rule. When BellSouth connects a new customer who is seeking service from an existing home or apartment, BellSouth is not required to perform any physical work

[15] Cf. BellSouth South Carolina Order ¶ 205 (noting that BellSouth "has provided no evidence to substantiate [its] assertion" that "there should be no difference between running an unbundled loop to a collocation space to be attached to a new entrant's switch and running a loop and switch port to the same space for combining").

to connect that customer's loop to the switch.[16] The customer receives this new service by implementing a recent change in the switch to allow the switch to function with the customer's loop. The only service that would be remotely analogous to how BellSouth proposes that CLECs combine elements is when BellSouth adds a second line for a customer and some frame work must be performed to connect the second line to a spare switch port. This physical work only accounts for a small percentage of BellSouth's new customer activity, whereas BellSouth's policy requires 100 percent of the CLEC's customers to be subjected to this physical work activity. Additionally, a connection for a BellSouth customer's second line will generally require only one cross-connection to be performed, and that cross-connection will be made on a loop that is not already in service. The CLEC work requires a minimum of two coordinated cross-connections and creates an outage on a line already receiving service.

64. In addition, the time frame in which a cutover for combining UNEs should be performed contrasts markedly with BellSouth's typical operations referred to by Mr. Milner. In those operations, which may involve, for example, changing an existing PBX customer to Centrex service, BellSouth is afforded significant time to plan for the cutovers. In contrast, when cutovers are performed for combining UNEs, BellSouth will not be

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[16] See, e.g., BellSouth's Response to AT&T's Second Data Requests, Tennessee Regulatory Authority, TRA Docket No. 97-00309, Item No. 11, page 1 of 1 (March 6, 1998) (REQUEST: In the majority of cases in which a residential POTS customer with analog service discontinues service because he or she has moved, does BellSouth physically remove any facilities (e.g., cross-connections) in order to disconnect the service? . . . . RESPONSE: No.") (Attachment 14).

informed until it receives the CLECs' orders, for example, of the numbers of cutovers it must perform and the locations where it must perform them. Once those orders are received, BellSouth has the obligation to implement them and perform the cutovers in a matter of days. For these reasons, BellSouth's existing M&Ps for cutover for new premises of their own customers or for unbundled loop cutovers for CLEC customers are in no way sufficient to ensure that cutovers for combining UNEs are completed in the most efficient and least disruptive manner.

65. This is made perfectly clear by examining BellSouth's performance in the world of "pure" unbundled loop provisioning. That process, for which BellSouth has established M&Ps, is also more complex than BellSouth's routine operations to which Mr. Milner refers (because of the pressures from competitive conditions just discussed). However, it is a simpler process, in which only one disconnect/new connect need occur in a hot cut, than the cutover that is required for combining the loop and the switch. Nevertheless, CLEC customers have been subjected to substantial service outages even with this simpler process. Far from quickly cutting over service in the dead of night, ILECs have frequently left new CLEC customers without service for hours at a time in mid-day.

66. Thus, in BellSouth's previous applications for South Carolina and Louisiana, CLECs detailed numerous problems with BellSouth's cutover process.[17] Even

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[17] See, e.g., ACSI Comments, South Carolina Proceeding, Affidavit of James C. Falvey, ¶ 34, CC Docket No. 97-208 (Oct. 20, 1997); WorldCom Comments, South Carolina Proceeding, Ball Affidavit, ¶ 18, CC Docket No. 97-208 (Oct. 20, 1997); Sprint Comments, South

(continued...)

now, over eight months later, CLECs continue to report in various state proceedings in BellSouth's region that they are still experiencing significant delays and outages for this simpler process of cutting over loops. For example, NEXTLINK reported in Tennessee that it "has had longstanding difficulties in coordinating cutovers with BellSouth" and that "[o]ne of the most significant problems from the perspective of NEXTLINK's customers is that BellSouth often disconnects a customer before the cutover to NEXTLINK is scheduled to occur, abruptly taking the customer out of service, often in the midst of a business day."[18] According to NEXTLINK, its "employees have spent countless hours communicating with BellSouth in a seemingly never-ending series of meetings, telephone calls, and e-mail" to attempt to solve these and other problems. Id. at 13. Unfortunately, the "response from BellSouth has been slow." Id. at 14.

67. Likewise, ACSI is continuing to experience problems with BellSouth's cutovers in Alabama. There, ACSI testified that "BellSouth has never met th[e] five-minute standard" contained in ACSI's interconnection agreement, and that "recently we've had cutovers of three hours here in Montgomery. . . . It took from 5:00 in the evening until 8:00

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[17] (...continued)
Carolina Proceeding, pp. 16-17 and Closz Affidavit, ¶¶ 65-84, (Oct. 20, 1997); Affidavit of Robert V. Falcone and Michael E. Lesher, Exh. E to AT&T Comments, Louisiana Proceeding; ACSI Comments, Louisiana Proceeding, at 23-32; Sprint Comments at 31-33 & Closz Aff. ¶¶ 59-78.

[18] NEXTLINK Tennessee, Direct Testimony of Lisa Dickinson, Tennessee Regulatory Authority, Docket No. 97-00309, (filed March 27, 1998) at 13-17 (excerpt included as Attachment 15).

in the evening . . . [for] twelve lines."[19] The result is that "there is an additional added expense for ACSI because we have got tech[nicians] out there, both out in the field and also switch technicians working those orders for an expanded period of time." Id. at 742.

68. BellSouth concedes that it has experienced a number of problems in provisioning unbundled loops, contending that such problems are an inevitable by-product of "any new and complex offering such as unbundled loops." Milner Aff., ¶¶ 68-75 (emphasis added). Although BellSouth predictably claims that it has resolved its loop provisioning problems, even if true this assertion provides no solace. In light of BellSouth's past performance, there is every reason to expect that the "new" and substantially more "complex" process of combining loops and switch ports via collocation will spawn even greater cutover problems.

69. The potential impact of mandatory, unpredictable, and potentially extended service outages on the prospects for local competition cannot be overstated. Customers will be alarmed at the prospect of any service outage, and will not tolerate any prospect of an outage for more than a negligible period of time. Indeed, the service outage necessitated by the ILEC proposal will, by itself, be a severe impediment to a CLEC's ability to compete effectively.

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[19] ACSI, Testimony of James C. Falvey, Alabama Public Service Commission, In re BellSouth Telecommunications, Inc.'s Petition for Approval of SGAT, Docket No. 25835, Hearing, (March 12, 1998) at 740-42 (excerpt included as Attachment 16).

B. The Inherent Provisioning Limits of Collocation Will Cause "Gated" Market Entry

70. Quite apart from the customer impact of out-of-service conditions, there are additional competitive obstacles that arise from the limits collocation places on an ILEC's ability to provision loop and switch element combinations. These obstacles are inherent in the nature of the collocation process. First, the time needed to apply for space, to construct collocation space, and then to install equipment in the space will delay any market entry. Second, the architecture of the MDF imposes limits on the number of customers that can be provisioned in any given day. As a result, the number of customers a CLEC could actually serve using unbundled loop and switch combinations would be only a fraction of the customers the CLEC could otherwise win. In contrast, when an ILEC enters the long distance market, there will be no practical limits on its ability to absorb new long distance customers through the time-tested electronic "PIC" process that ILECs implement through their recent change capabilities.

1. Limits In Establishing Collocation Space

71. The first limit arises from the CLECs' need to establish collocated space -- either physical or virtual -- in every central office from which a CLEC wishes to serve customers using the loop/switch combination. The collocation that CLECs have pursued to date has typically involved only a focused group of central offices in a few parts of a state. For a CLEC like AT&T that wishes to use the combined unbundled loop and

switch to offer business and residential service throughout a state, the demand for collocated space would be much greater.

72. At the outset, I stress that collocated space is a valuable and scare resource, and therefore, should be used efficiently, for the most vital activities. A number of central offices in BellSouth's region already have insufficient space for physical collocation.[20] And, as even BellSouth admits, a "proliferation of collocation arrangements" -- which would certainly occur if BellSouth's collocation requirement stands -- would cause "floor space shortages." Tipton Aff. ¶ 23. Although BellSouth claims such shortages are "isolated" and not "imminent," id., it seems that even BellSouth is not aware of the amount of space left in its central offices. See Attachment 13 (BellSouth 2/10 Response, at 7) (claiming that providing information on the availability of space "for each central office would require a colossal effort") (emphasis added). In short, there can be little doubt to the common sense notion that collocation space is limited, and that demand for it will continue to increase over time. See also infra Part III.B.3 (describing lack of room in collocated space for MDF expansion).

73. This scarcity only adds to the folly of BellSouth's requirement that CLECs occupy collocated space even if that space is used only to recombine unbundled

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[20] See BellSouth Telecommunications, Physical Collocation, Interdepartmental Service Description, Version 1.2, at 11 (Apr. 10, 1997) (Attached to Milner Aff., Exh. WKM-4, Tab 2) ("Currently, BellSouth is aware of 31 offices which do not have adequate space for physical collocation."). This list of 31 offices is not exhaustive, however, id., and BellSouth has refused AT&T's request to provide more detailed and more recent information on the available space in its central office. See Attachment 13 (BellSouth 2/10 Response, at 7).

elements. Because such space is limited, that space should be used where truly needed. A CLEC's provision of combined UNEs will provide greater choice to consumers, but those benefits of UNE combinations need not come at the cost of wasting collocated space, because of the alternative proposals for combinations that do not require collocated space. And, unlike a CLECs' installation of a switch or other equipment, the use of collocated space to install mini-MDFs solely to recombine UNEs offers no added functionality for consumers. See Amos Joel Aff. (Attachment 1) ¶¶ 19-41 (describing engineers' efforts to ensure that network resources are deployed to add efficiency, functionality and/or reliability).

74. Entirely apart from concerns about the efficient use of collocated space are the delays in establishing a collocation arrangement, which delays a CLECs' entry into the market. See BellSouth South Carolina Order ¶ 202 (delays in establishing collocation facilities would "create a formidable entry barrier" and "would impede competitive entry"). As I previously noted, BellSouth in this application has now generally committed itself to meeting intervals for the inquiry phase of virtual and physical collocation and the construction- installation phase of physical collocation. Although this paper commitment represents an improvement over BellSouth's prior policy, even if BellSouth followed perfectly these new guidelines, applying for and establishing collocated space still creates significant delay for CLECs attempting to enter the market and serve consumers with UNE combinations.

75. First, BellSouth's intervals omit certain parts of the collocation process that will add some time to the process. Second, BellSouth's intervals apply only under